

Synchronizing Watermark Detectors in Geometrically Distorted Signals

Abstract of the Disclosure

5 A method of synchronizing a digital watermark detector divides a watermarked
signal into blocks, each block including a portion of a watermark signal. For each block,
the method computes a local correlation space comprising a neighborhood of correlation
values by correlating the watermarked data in the block with a known watermark signal
at a neighborhood around the block. It then finds a correlation maxima in the local
correlation space for each block, where the correlation maxima indicates a local offset
10 used to align the watermarked data in the block before decoding a watermark message
from the block. To further refine the synchronization, the method filters the array of
local offsets for the blocks to provide a refined set of offsets. The offsets and
corresponding correlation values provide an indicator of where message symbol decoding
will provide more accurate results, enabling the watermark message decoder to
15 selectively decode symbols from portions of a signal block containing a watermark
signal.